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19 March 2018

Ex Parte

Marlene H. Dortch
Secretary, Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: *Amendment of Parts 2 and 25 of the Commission's Rules to Facilitate the Use of Earth Stations in Motion Communicating with Geostationary Orbit Space Stations in Frequency Bands Allocated to the Fixed Satellite Service*; IB Docket No. 17-95

Dear Ms. Dortch:

On 15 March 2018, Maureen C. McLaughlin, Vice President of Public Policy for Iridium Communications, Inc. ("Iridium"), Brandon Hinton of Wiley Rein LLP, Joe Godles of Goldberg, Godles, Weiner & Wright LLP, and Shiva Goel and I of Harris, Wiltshire & Grannis LLP met with Thomas Sullivan, Jennifer Gilsenan, Troy Tanner, and Jose Albuquerque of the International Bureau.

In the meeting, Iridium expressed its general support for the Commission's proposal to facilitate the deployment of earth stations in motion ("ESIMs"), but urged the Commission to exclude the 29.25-29.3 GHz band from its order.

We explained that Iridium's non-geostationary satellite orbit ("NGSO") network, which is used as critical infrastructure by the U.S. military and intelligence communities, first responders, and the commercial sector, uses the 29.25-29.3 GHz band for feeder-link operations on a co-primary basis. We also explained that the satellite industry has been unable to develop a method for defining exclusion zones around Iridium's earth stations that can protect Iridium's feeder links from ESIM interference.

Thus, we argued that the risk to Iridium uplinks far outweighs the meager benefits of permitting ESIM operations in the 29.25-29.3 GHz band. The 50 megahertz available in the band represents only 2.5% of the 2,000 megahertz in new ESIM spectrum under consideration, and it would not be available for ESIMs in a substantial part of the country even under the best circumstances. On the other hand, a new rule allowing ESIMs in the 29.25-29.3 GHz band would, in addition to putting Iridium's network at risk, result in significant litigation before the Commission, given that the industry still does not know how to calculate a suitable exclusion zone in these circumstances. Shifting the burden to the Commission to do what the industry has been unable to do itself would be inefficient and irresponsible.

Iridium also attempted to correct the misimpression that the number of ESIM terminals communicating with a GSO satellite is irrelevant to the interference analysis. Most ESIMs use TDMA to allow multiple devices to access the same channel by communicating at different

times. So, if three ESIMs are using the same channel, ESIM1 is only transmitting during the first of every three time slots, ESIM2 is only transmitting during the second of every three time slots, and ESIM3 is only transmitting on the third of every three time slots. Because of this TDMA technology, some have suggested that having thousands of ESIMs share a channel is no different than having a single ESIM operate on the channel continuously.

But this analysis is based on a misunderstanding of the interference risk that ESIMs pose to large NGSO networks, like Iridium's, that have many satellites in orbit. The concern is not that many ESIM terminals operating constantly will, with their combined power, overload the NGSO satellite receiver. It is that bursts of short-term interference, each resulting in the temporary unavailability of NGSO feeder links, will occur *too frequently*.

Put simplistically, assume that one ESIM operating constantly will interfere with an NGSO satellite ten times an hour (each time one of the satellites in the NGSO constellation passes between the ESIM and the GSO satellite with which it is communicating). Three ESIMs in different locations, each operating one-third of the time because of TDMA, *will interfere with an NGSO satellite much more often,* because there will be many more times when an NGSO satellite will pass between at least one of the ESIMs and the GSO satellite with which the ESIMs are communicating.

It is these short-term interference events that, in the aggregate, can result in link unavailability for too high a percentage of time. And it is the frequency of these short-term interference events (i.e., the number of times they occur per unit of time) that Iridium and other operators must model in order to derive an exclusion zone. *Thus, the number of ESIMs operating in a given region, and their locations over time, is critical* and must be known (in addition to basic operating parameters) in order to define realistic exclusion zones.

Finally, Iridium explained that limited VSAT deployments already permitted by the rules do not serve as "precedent" for ESIMs;, but rather counsels against adding new and unmanageable layers of complexity to the interference environment in the 29.25-29.3 GHz band.

Sincerely,

Scott Harris

Scott Blake Harris
Counsel to Iridium Communications, Inc.

Cc: Meeting Attendees